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**BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

Paper No. 23

Application Number: 09/005,034
Filing Date: January 9, 1998
Appellant(s): Peter K. Law

Marvin Motsenbocker
For Appellant

## EXAMINER'S ANSWER

This is in response to appellant's brief on appeal filed 07/06/2000.

***(1) Real Party in Interest***

A statement identifying the real party in interest is contained in the brief.

***(2) Related Appeals and Interferences***

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

*(3) Status of Claims*

The statement of the status of the claims contained in the brief is correct.

*(4) Status of Amendments After Final*

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

*(5) Summary of Invention*

The summary of invention contained in the brief is deficient in that it is essentially a bacground summary and an argument of unexpected results. The claimed invention is drawn to a method for treating a body part of a subject comprising culturing myogenic cells which are MHC-1 antigen deficient and injecting the cells into a face, breast, hip, or non-diseased muscle such that the cosmetic appearance of the subject is altered. The invention is also drawn to a method of producing MHC-1 antigen deficient cells by tagging MHC-1 antigen deficient cells in a cell population, removing the tagged cells and proliferating the removed cells; a method for augmenting a body part comprising replacing silicone previously injected into a face, breast, hip, or non-diseased muscle with myogenic cells; and to a method for augmenting a body part comprising dissecting and removing fat and/or connective tissue from the body part and surgically implanting myotubes into the body part.

*(6) Issues*

The appellant's statement of the issues in the brief is incorrect. The changes are as follows: The single issue is whether the claimed subject matter was described in the specification is such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected to make and/or use the invention.

*(7) Grouping of Claims*

Appellant's brief includes a statement that claims 20-25 and 27-32 do not stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

*8) Claims Appealed*

The copy of the appealed claims contained in the Appendix to the brief is correct.

*(9) Prior Art of Record*

Coovert, et al. "Gene therapy for muscle diseases." Current Opinion in Neurology, vol. 7 (October ,1999), pp. 463-470.

DiMario et al. "Myoblast Transfer into Skeletal Muscle." Neuromuscular Development and Disease, (1992) Kelly et al., ed., Raven press, Ltd., New York, pp. 329-340.

Hoffman, E.P., "Myoblast Transplantation: What's Going On?" Cell Transplantation, vol. 2 (1993), pp. 49-57.

Morgan et al. "Formation of Skeletal Muscle in vivo From the Mouse C2 Cell Line." Journal of Cell Science, vol. 102 (1992), pp. 779-787.

*(10) Grounds of Rejection*

The following grounds of rejection are applicable to the appealed claims:

Claims 20-25 and 27-33 stand rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention for the following reasons.

The first paragraph of 35 U.S.C. 112 states, "The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same...". The courts have interpreted this to mean that the specification must enable one skilled in the art to make and use the invention without undue experimentation. The courts have further interpreted undue experimentation as requiring "ingenuity beyond that to be expected of one of ordinary skill in the art" (Fields v. Conover, 170 USPQ 276 (CCPA 1971)) or requiring an extended period of experimentation in the absence of sufficient direction or guidance (In re Colianni, 195 USPQ 150 (CCPA 1977)). Additionally, the courts have determined that "... where a statement is, on its face, contrary to generally accepted scientific principles", a rejection for failure to teach how to make and/or use is proper (In re Marzocchi, 169 USPQ 367 (CCPA 1971). Factors to be

considered in determining whether a disclosure meets the enablement requirement of 35 U.S.C. 112, first paragraph, have been described in In re Colianni, 195 USPQ 150, 153 (CCPA 1977) and have been clarified by the Board of Patent Appeals and Interferences in Ex parte Forman, 230 USPQ 546 (BPAI 1986). Among the factors are the nature of the invention, the state of the prior art, the predictability or lack thereof in the art, the amount of direction or guidance present, the presence or absence of working examples, the breadth of the claims, and the quantity of experimentation needed.

The claimed invention is drawn to a method for treating a body part selected from face, breast, hip, and non-diseased muscle comprising culturing myogenic cells and administering the cells to the body part by injection, such that the cosmetic appearance of the subject is altered. The invention encompasses cosmetic alteration of humans. The art does not teach that the cosmetic appearance of a human body part can be altered by injection of myoblasts into that body part. The art teaches that when cultured myoblasts are injected into skeletal muscle in mice, some of the cells can contribute to the formation of new muscle *in vivo*; however, the art teaches that human transfer has not been successful or at best that the results of human transfer have been controversial (see Coovert et al. 1994; page 463, column 2, first full paragraph; and Hoffman, 1993, the entire document and especially page 53 through page 54, first partial paragraph). Furthermore, while the art teaches partial restoration of dystrophin levels in mice injected with myoblasts, it does not teach any resulting alteration in the "cosmetic appearance" of the injected muscle or of the mouse (see Hoffman 1993, page 52, columns 1 and 2 and Coovert et

al.1994, page 463, column 2). Due to the unpredictability of the art, detailed teachings of the claimed method are required to be present in the disclosure, in order to enable the skilled artisan to practice the invention. Such teachings are absent.

The claimed invention is drawn to alteration of the cosmetic appearance of a body part selected from a face, breast, hip, and non-diseased muscle. The human breast is composed of adipose tissue and the human hip is composed of bone. The art teaches that studies in mice have shown that injected myoblasts contribute to the formation of new muscle *in vivo* by fusing with endogenous myoblasts (see Coovert et al. 1994). Conventional wisdom teaches that myoblasts only fuse with myoblasts (*i.e.* muscle cells). The art does not teach fusion of myoblasts with adipocytes or osteocytes. Thus it is unclear how administration of myoblasts to breast tissue or to a hip could be used to alter the cosmetic appearance of the body part. Because the art does not recognize fusion of myoblasts with adipocytes or osteocytes, detailed teachings of the claimed method are required to be present in the disclosure, in order to enable the skilled artisan to practice the invention. Furthermore, the art teaches that the growth or regenerative state of the muscle into which myogenic cells are transferred affects the degree to which donor myoblasts contribute to new muscle formation, with incorporation occurring in regenerating muscle to a much greater extent than in normal uninjured or non-diseased muscle (see DiMario et al. 1992, page 333, in its entirety). Given these teaching, it is unclear how donor myoblasts could be used to alter the cosmetic appearance of non-diseased muscle. Once again, the detailed teachings necessary to overcome conventional wisdom, as taught in the art, are not found in the disclosure.

The claimed invention also is drawn to culturing myogenic cells for proliferation and administering the proliferated cells into a subject. The art teaches that injection of proliferating undifferentiated muscle cells results in the formation of tumors at the site of injection (see Morgan et al. 1992, page 779, the abstract and column 2, first full paragraph). Detailed teachings are required in the disclosure to overcome the teaching of tumor formation . Such teachings are absent.

In summary, the art teaches that myogenic cell transfer for cosmetic alteration of a nondiseased body part is completely unpredictible because it teaches that myoblast transfer for treatment of diseased muscle is unpredictable in humans, that myogenic cells transferred to non-diseased muscle do not contribute to new muscle formation, that myoblasts only fuse with myoblasts and not to osteocytes or adipocytes, and that injection of proliferating undifferentiated muscle cells results in tumor formation. The disclosure lacks teachings sufficient to overcome the teachings of unpredictability found in the art. The sole reference to cosmetic usage in the disclosure is found in the paragraph bridging pages 22-23. The remainder of the disclosure teaches myoblast transfer for treatment of Duchenne muscular dystrophy DMD or infantile facioscapulohumeral dystrophy (IFSH), both conditions accompanied by deteriorating muscle tissue. There is no guidance provided as to how one of skill in the art could apply those teachings to cosmetic alteration of non-diseased body parts. There are no working examples describing cosmetic alteration of a non-diseased body part. In the absence of such teachings and in view of

the unpredictability taught in the art, it would require undue experimentation by one of skill in the art to be able to practice the claimed invention.

*(11) Response to Argument*

Appellant argues that the invention does not require extensive optimization or trial to carry out successfully because any optimization therein implied exists as a routine procedure of medical practitioners. The examiner maintains that since the art does not in any way teach cosmetic alteration of a body part by injecting cultured myogenic cells into the body part, that such a procedure cannot exist as a routine procedure of medical practitioners. The X-rays, sonograms, etc. referenced by appellant are not germane to the claimed invention, which is myoblast transfer in order to alter the cosmetic appearance of a subject.

Appellant argues that there are real examples covering two species provided in the disclosure which do not utilize new experimentation. Although appellant does not define the two species referenced, the examiner maintains that there are no working examples teaching cosmetic alteration of a non-diseased body part disclosed for any species. Appellant's arguments regarding "oblique injection" of humans are noted; however, oblique injection is taught in the disclosure for treatment of dystrophic muscles, not for cosmetic alteration of a non-diseased body part (see page 24, line 35, through page 26, line 18).

Appellant argues that the disclosure provides detailed guidance as to the exact numbers of cells which have been successfully transferred into specified human tissues , the number of injections, the purity of the cells and the types of cells, as well as providing optimal concentration

ranges of chondroitin sulfate. Once again, all of the teachings referred to are for treatment of diseased muscles associated with DMD or IFSH. None are referenced for cosmetic alteration of a non-diseased body part. Given the teachings found in the art that transferred myoblasts do not fuse with non-diseased muscle cells to the same extent that they fuse with cells of regenerating muscles (see DiMario et al. 1992, page 333, in its entirety), these teachings do not provide sufficient guidance for treating non-diseased tissues.

On the one hand, appellant argues that others have followed in appellant's footsteps; however, no evidence of this has been provided. One the other hand, appellant argues that others have had lack of success due to their "reluctance to invest the time and money in preparing suitable numbers of cells and to inject them obliquely to obtain a sufficient amount to make a difference to the recipient, both in a biochemical and a cosmetic sense". Appellant has provided no evidence in support of either position. Arguments in the absence of evidence are not persuasive.

Appellant's comments regarding an alleged personal vendetta against appellant by Hoffman and an attached copy of a public apology are noted; however, their relevance to the present invention is unclear. Dr. Hoffman makes no statements at all pertinent to cosmetic alteration of a body part. In fact, it would seem from the wording of Dr. Hoffman's apology that the damaging statements were most likely regarding a treatment for muscular dystrophy.

Regarding appellant's argument that since the 1992 publication of Hoffman that appellant's method described in the specification has become accepted as is evidenced in the

FDA letter of Exhibit F, the relevance of the FDA letter is also not clear, as it addresses investigation of myoblast transfer therapy for treating DMD. Applicant's invention is drawn to methods for cosmetic alteration of a body part and encompasses alteration of non-diseased muscle, as well as normal breast tissue and bone. The FDA letter addresses a different subject, namely delay or prevention of disability and/or death in DMD patients.

Appellant argues that enabling features are outlined in a later published scientific paper (Gene Ther. Mol. Biol., Exhibit B). Appellant's arguments regarding the teachings found in the paper are noted; however, they would seem to be irrelevant to the present invention which is drawn to a method of cosmetic alteration of a non-diseased body part. Appellant's publication deals exclusively with myoblast transfer for gene therapy and treatment of DMD.

Appellant argues that there were four sets of studies which originated the new methods for cosmetic therapy (page 11 of the Brief). However, once again, those portions of the disclosure referenced by appellant were either conducted in mice, which the art teaches are not a comparable model to humans for myoblast transfer studies (see Coovert et al. 1994; page 463, column 2, first full paragraph; and Hoffman, 1993, the entire document and especially page 53 through page 54, first partial paragraph), or are exclusively directed to treatment of diseased muscles in boys with DMD or IFSH. As has been repeatedly pointed out herein, appellant's claimed invention is drawn to a method for cosmetic alteration of a non-diseased body part selected from a face, a breast, a hip, or a **non-diseased** muscle (emphasis added). It is not

directed to a method for treating muscle degeneration resulting from a chronic disease such as DMD or IFSH.

For clarification of the record, the examiner has at no time "alleged that the invention will only work with normal animals" (page 12, third full paragraph, of the Brief). Rather, the examiner has maintained that the disclosure does not contain teachings sufficient to enable cosmetic alteration of non-diseased or normal body parts. Even so, the working example referenced by applicant regarding the study performed on normal mice does not teach any cosmetic alteration of a body part or of the mouse which resulted from injecting myoblasts; it merely teaches that some of the injected myoblasts fused with endogenous muscle cells (see page 25 of the disclosure). Thus, the examiner disagrees with appellant's assertion (page 13, second full paragraph of the Brief) that appellant has working examples in both normal and diseased animals; in fact, no cosmetic alteration is taught for either.

Appellant's arguments that the disclosure is enabled for the invention as claimed because "all tissue according to the methods described and claimed must be injured by piercing" is noted; however, appellant is reminded that the claimed invention is directed to cosmetic alteration of a **non-diseased** body part, not to a body part injured by piercing.

Appellant argues that the disclosure is enabling for alteration of non-diseased muscle tissue because moderate exercise facilitates the success of the claimed method and strenuous exercise causes damage, which is a preferred embodiment (see the sentence bridging pages 14-15 of the Brief). The portion of the disclosure references by appellant, however,

teaches "Mild exercise done shortly after MET can be designed to facilitate myoblast mixing, alignment, and fusion ..." (see page 27, lines 5-8). This teaching once again appears to be irrelevant to the issue of cosmetic alteration of non-diseased muscles.

Appellant's arguments regarding living material, the number of cells used, the method of transfer treatment, and the level of skill in the art are all directed to studies conducted on diseased muscles, not to the claimed method for treating non-diseased body parts in order to alter the cosmetic appearance of a subject.

Appellant argues that the teachings of Satoh et al.(1992, Exhibit D) show that myogenic cells can fuse with fat cells. The examiner disagrees with appellant's assertions regarding Saroh et al. Satoh et al. teach that myoblasts form myotubes in the regenerating muscles of dystrophic (mdx) mice wherein a large part of the muscle mass has been replaced by connective and adipose tissue (see the abstract). Satoh et al. teach that myoblasts form the myotubes despite the presence of the other tissue types. The examiner can find no teaching in Satoh et al. that the myoblasts fuse with any cells of the adipose or connective tissue. Applicant's argument that Teboul et al. (1995) teach that myoblasts can be converted into fat cells to augment the size, shape, and consistency of soft tissues has not been considered, as no copy of Teboul et al. has ever been provided. Appendix D referred to by applicant submitted with the amendment after final filed 02/07/2000 (Paper # 13) does not contain a copy of this document.

Appellant's arguments regarding the studies performed in mice, diseased and non-diseased body parts, and whether myoblasts fuse with adipocytes have all been previously addressed herein.

Lastly, appellant argues that the claimed "method is accepted and that a number of companies have started to exploit the underlying technology" (see page 19 of the Brief, last sentence). However, appellant has not provided any names of companies using the technology, nor has appellant provided any evidence that culturing myogenic cells and administering the cells into a body part selected from face, breast, hip, and non-diseased muscle is an accepted method for cosmetic alteration of the body part which is currently being exploited.

For the above reasons, it is believed that the rejection should be sustained.

Respectfully submitted,

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November 6, 2000

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